

Notice of Allowability

Application No.

10/714,177

Examiner

Kevin M Bernatz

Applicant(s)

COFFEY ET AL.

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to interview of 11/17/2004.
2. ☒ The allowed claim(s) is/are 15-20, 48-50 and 67-69.
3. ☒ The drawings filed on 14 November 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 11/14/03
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 11/19/2004
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Examiner's Amendment

1. This application is in condition for allowance except for the presence of claims 1 – 14, 21 – 47, 51 – 66 and 70 - 78 to a species non-elected without traverse. Accordingly, claims 1 – 14, 21 – 47, 51 – 66 and 70 – 78 have been cancelled.
2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
3. Authorization for this examiner's amendment was given in a telephone interview with Mr. Lew Nunnelley on November 17, 2004.

The application has been amended as follows:

- The abstract has been replaced with the following:

"A thermal spring magnetic medium is provided having first and second stacks providing two exchange coupled ferromagnetic layers having different Curie temperatures. The first stack has a high magneto-crystalline anisotropy, a relatively low saturation magnetization and a low Curie temperature. The second stack has a relatively low magneto-crystalline anisotropy, a high saturation magnetization and a high Curie temperature. Preferably the first stack includes an alloy of Fe-Pt or Co-Pt, and the second stack includes an allow of Co-Pt or Co-Pd. A disk drive system having the novel medium is also provided."

- The specification has been amended as follows: the paragraph on page 1, lines 5 – 8 has been replaced with the following:

“This application is a divisional of parent application “THERMAL SPRING MAGNETIC RECORDING MEDIA FOR WRITING USING MAGNETIC AND THERMAL GRADIENTS” serial number 09/874,100 (now abandoned). A related application entitled “THERMALLY ASSISTED MAGNETIC RECORDING SYSTEM AND METHOD OF WRITING USING MAGNETIC AND THERMAL GRADIENTS”, serial number 09/874,673, was filed on the same day as the parent application and is owned by a common assignee.”

Reasons for Allowance

4. The present claims are deemed allowable over the reference Futamoto et al. (U.S. Patent No. 6,183,893 B1) since the Futamoto et al. fail to disclose or render obvious a first magnetic layer made of a granular $L1_0$ phase alloy in combination with a second magnetic layer meeting the relative Curie temperature limitations.

While Futamoto et al. disclose dual perpendicular magnetic layers possessing the claimed relative magnetic anisotropy values, Futamoto et al. fail to disclose or render obvious a medium meeting the claimed limitations recited above.

5. The present claims are deemed allowable over the reference Ikeda et al. (U.S. Patent No. 6,468,670 B1) since the Ikeda et al. fail to disclose or render obvious a first and second magnetic layer meeting the claimed relative Curie temperature limitations.

While Ikeda et al. disclose a granular $L1_0$ alloy used in combination with a Co-Pt alloy second magnetic layer, Ikeda et al. fail to explicitly disclose, nor render obvious, the claimed relative magnetic anisotropy and Curie temperature values.

6. The present claims are deemed allowable over the reference Hikosaka et al. (U.S. Patent No. 6,754,020 B1) since the Hikosaka et al. fail to disclose or render obvious a $L1_0$ alloy possessing a Curie temperature lower than a Co-Pt or Co-Pd alloy second magnetic layer, wherein the magnetic anisotropy value of the $L1_0$ alloy is greater than the magnetic anisotropy value of the second magnetic layer.

While Hikosaka et al. disclose dual layered recording media meeting applicants' claimed relative Curie temperature values, Hikosaka et al. fail to teach or render obvious the combination of a first magnetic layer formed of a granular $L1_0$ alloy and a Co-Pt or Co-Pd second magnetic layer, wherein the first magnetic layer has a first magnetic anisotropy and Curie temperature meeting applicants' claimed limitations.

7. The present claims are deemed allowable over the reference Acharya et al. (U.S. Patent No. 6,551,728 B1) since the Acharya et al. fail to disclose or render obvious a recording medium possessing a first and second magnetic layer, wherein the first and second magnetic anisotropy and Curie temperatures meet applicants' claimed limitations.

Acharya et al. disclose a dual layered recording medium possessing a first magnetic layer with a first magnetic anisotropy and a first Curie temperature and a second magnetic layer with a second magnetic anisotropy and a second Curie temperature. Acharya et al. further disclose that the first magnetic anisotropy is greater than the second magnetic anisotropy and the first Curie temperature is greater than the second Curie temperature. However, Acharya et al. fail to disclose or render obvious a recording medium wherein the first magnetic layer is a granular L₁₀ magnetic alloy and possesses a first magnetic anisotropy greater than said second magnetic anisotropy while possessing a first Curie temperature smaller than said second Curie temperature.

8. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

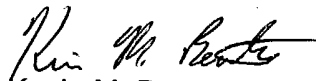
Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M Bernatz whose telephone number is (571) 272-1505. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Kevin M. Bernatz, PhD.
Primary Examiner

November 19, 2004